Inter-Programme Variation in Dietary Analysis.

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Purpose

- Under the Competence Framework for Nutrition (Association for Nutrition, 2015), sports professionals are able to use dietary records such as food diaries as a tool to support behaviour change.
- Whilst food diaries are known to have inherent sources of error affecting reliability, the reliability of food diary analysis using commercially available software has not been investigated in University undergraduate students studying sport-related courses.

Competency Framework

- The competency framework states the expected nutrition knowledge of those working in fitness.
- There are three competencies, each with a number of sub-competencies:
  - Fundamentals of Human Nutrition
  - Improving Health & Wellbeing
  - Nutrition Monitoring & Data Collection
- The last competency states that those working in fitness should know how to use and analyse food diaries (Figure 1).

Competence	Topic	Level 1	Level 2	*Level 3	*Level 4
3. Nutrition monitoring and data collection techniques	Body composition measurement and interpretation	Be aware of the principles of **body composition measurement** and the limitations of these measures.	Know how to describe **body composition measurements** in relation to nutrition, and the limitations of these measures.	Be able to accurately measure and interpret **body composition** and understand how these measures (and their limitations) relate to nutrition intake.	Be able to accurately measure and interpret **body composition** and explain how these measures (and their limitations) relate to nutrition intake.
	Technology for dietary information collection and monitoring	Be aware of **technology** to record and monitor **dietary intake** information.	Know how **technology** can be used for data collection and monitoring of dietary information (e.g. applications and monitors) and be aware of their limitations.	Understand and describe how **technology** can be used for data collection and monitoring of dietary information, (e.g. applications and monitors) to support nutrition and behaviour change, and know their limitations.	Understand and explain how **technology** can be used for data collection and monitoring of dietary information, (e.g. applications and fitness monitors) to support nutrition behaviour change, and know their limitations.
	Dietary records		Know how to use **dietary records** as a monitoring tool to support behaviour change (e.g. food diary, food recall and food frequency questionnaires) and be aware of their limitations.	Be able to use dietary records (and know their limitations) as a tool to support behaviour change (e.g. food diary, food recall and food frequency questionnaires) when guiding food choice in relation to **healthy eating guidelines.**	Be able to use and be able to explain how **dietary records** can be used (and their limitations) as a tool to support behaviour change (e.g. food diary, food recall and food frequency questionnaires) when guiding food choice in relation to **healthy eating guidelines.**
	Data collection	Know and be able to obtain consent when collecting data from individuals and methods for protecting and securing confidentiality of sensitive or personal data.	Understand the objectives and purpose of **data and information collection, storage and retrieval practices and data sharing protocols** in accordance with organisational policies and standards.	Apply knowledge and understanding of the objectives and purpose of **data and information collection, storage and retrieval practices and data sharing protocols** in accordance with organisational policies and standards Apply knowledge of suitable methods for collecting and validating the quality of data and information.	Understand and explain the objectives and purpose of **data and information collection, storage and retrieval practices and data sharing protocols** in accordance with organisational policies and standards Apply and explain suitable methods for collecting and validating the quality of data and information.

Figure 1: A part of the Competency Framework

Aim

- The aim of this study was to investigate the variability between DietPlan (DP; nutrition analysis software that contains peer-reviewed UK food composition data) and MyFitnessPal (MFP), a popular app used for dietary assessment in undergraduate students studying nutrition as part of their sport-related course.

Method

- An independent groups design was used with the sample group (n = 204) randomised into either the DP (n = 87) or the MFP (117) to analyse the same one day food diary.
- Data was analysed descriptively using the median (Mdn) and Inter Quartile Range.
- Mann-Whitney U tests with a Bonferroni correction were used to determine between group difference in macronutrients and micronutrients.

Results

Significant differences were identified between MFP and DP in fat, cholesterol and sodium (Figure 2).

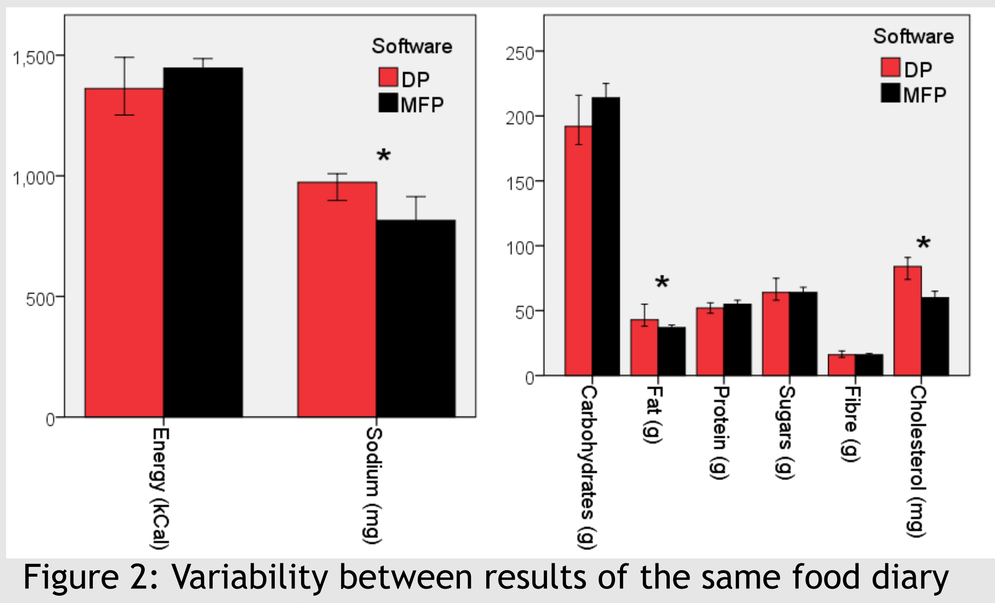

Figure 2: Variability between results of the same food diary analysed with different programmes. * denotes significant difference ($p<0.01$).

Conclusions

- It is of concern that fat, cholesterol and sodium showed variation, when these are of particular importance for health.
- Results highlight the need for continuing training for undergraduate students in ensuring accurate dietary analysis due to the importance of the Competency Framework.
- Further study is required to identify potential sources of variability (i.e. coding error relating to MFP specifically).

References

Association for Nutrition. 2015. *Workforce Competence Model in Nutrition for Fitness and Leisure*. [ONLINE] Available at: http://www.associationfornutrition.org/Default.aspx?tabid=298. [Accessed 28 April 2016].

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